IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: James H. VanGilder

Title: TELECOMMUNICATIONS GRAPHICAL SERVICE PROGRAM

Serial No.:   10/701,470

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Attorney Docket: 200314087-1 (1964-56-3)

DECLARATION OF PRIOR INVENTION IN THE UNITED STATES PURSUANT TO 37 C.F.R. § 1.131 TO OVERCOME A CITED PUBLISHED U.S. PATENT APPLICATION

TO THE COMMISSIONER FOR PATENTS:

    This Declaration establishes completion of the invention in the United States on a date before 3 January 2002, which is the filing date of U.S. Patent Application Publication 2003/0126584 A1 to Creamer *et. al.*

I, James H. VanGilder, hereby declare the following:

1)   I am the sole inventor of the invention described and claimed in U.S. Patent Application Serial No. 10/701,470 ("'470 application"), which was filed on October 30, 2003. Before 03 January 2002, I had conceived of and reduced to practice a telecommunications graphical service program in the United States. Specifically, I had conceived of and reduced to practice a telecommunications graphical service program that had the features of claims 1-20 as originally filed.

2)   This telecommunications graphical service program, which I had conceived of and reduced to practice before 03 January 2002, included a method in a graphical user interface for a computer displaying objects for designing a service graph using a plurality of service independent building blocks as shown and described in the '470 application. The method includes displaying a canvas object, displaying a toolbar object, displaying a menu object, and displaying a working folder tabs object that displays in one mode service independent building blocks that may be placed onto the canvas to design a service graph. Attached Exhibit 1 is a User's Guide of the telecommunications graphical service program showing in Figures 4-1 and 5-1, for example, display shots showing each of the elements recited in independent claims 1, 10, and 15. The User's Guide of Exhibit 1 was prepared prior to 03 January 2002.

3)   "Reduction to practice" as used herein means designing the telecommunications graphical service program, including drafting on paper or through computer programming the components and methods of such program and interconnections and functionality of such components.

4)   Exhibit 1 is a copy of pages that were generated before 03 January 2002 and includes descriptions and figures showing example screen shots of an embodiment of the invention described in '470 application. Exhibit 1 includes Figure 4-1 on page 4-1, which is a screen shot showing the canvas object, toolbar object, menu object, and working folder tabs object recited in independent claims 1, 10, and 15 according to one embodiment of the invention disclosed in the '470 application. The working folder tabs object on the left side of

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Figure 4-1 displays in one mode service independent building blocks that may be placed onto the canvas object—to the right of the working folder tabs object—to design a service graph. Exhibit 1 shows each and every element of claims 1, 10 and 15 as originally filed.

5)   Pursuant to MPEP § 715.09, I am seasonably submitting this Declaration before receiving a final rejection of the patent '470 application.

6)   I further declare that all statements made herein of my own knowledge are true; that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like, if so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

James H. VanGilder   United States of America
Full Name of Inventor   Citizenship

_____
Residence

_____   _____
Inventor's Signature   Date

GSDE for Windows
User's Guide

Abstract

This guide explains how to install and use the Graphical Service Design Environment (GSDE) for Windows.

Product Version

TSCE R01.12.00

Document History

Part Number	Product Version	Published
521310-001	TSCE R01.12.00	December 2001

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For manual ordering information: domestic U.S. customers, call 1-800-243-6886; international customers, contact your local sales representative.

Document Disclaimer

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Examples and sample programs are for illustration only and may not be suited for your particular purpose. The inclusion of examples and sample programs in the documentation does not warrant, guarantee, or make any representations regarding the use or the results of the use of any examples or sample programs in any documentation. You should verify the applicability of any example or sample program before placing the software into productive use.

U.S. Government Customers

GSDE for Windows User's Guide

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What's New in This Manual

Manual Information

Abstract

This guide explains how to install and use the Graphical Service Design Environment (GSDE) for Windows.

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521310-001	

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New and Changed Information

This is a new manual.
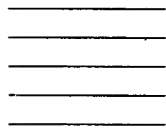
About This Manual

Who Should Use This Manual

The *GSDE for Windows User's Guide* is intended for the service designer who is creating services to execute in the Flexible Service Logic Execution Environment (FSLEE).

Where to Get More Information

Refer to the *FSLEE Reference Manual* for additional information about the Service Independent Building Blocks (SIBs) mentioned in this guide.

Hypertext Links

Blue underline is used to indicate a hypertext link within text. By clicking a passage of text with a blue underline, you are taken to the location described. For example:

This requirement is described under <u>Backup DAM Volumes and Physical Disk Drives</u> on page 3-2.

General Syntax Notation

The following list summarizes the notation conventions for syntax presentation in this manual.

UPPERCASE LETTERS. Uppercase letters indicate keywords and reserved words; enter these items exactly as shown. Items not enclosed in brackets are required. For example:

    MAXATTACH

lowercase italic letters. Lowercase italic letters indicate variable items that you supply. Items not enclosed in brackets are required. For example:

    file-name

**Punctuation.** Parentheses, commas, semicolons, and other symbols not previously described must be entered as shown. For example:

    error := NEXTFILENAME (file-name) ;

    LISTOPENS SU $process-name.#su-name

Quotation marks around a symbol such as a bracket or brace indicate the symbol is a required character that you must enter as shown. For example:

    "[" repetition-constant-list "]"

Item Spacing. Spaces shown between items are required unless one of the items is a punctuation symbol such as a parenthesis or a comma. For example:

    CALL STEPMOM (process-id) ;

If there is no space between two items, spaces are not permitted. In the following example, there are no spaces permitted between the period and any other items:

```
$process-name.#su-name
```

Change Bar Notation

Change bars are used to indicate substantive differences between this edition of the manual and the preceding edition. Change bars are vertical rules placed in the right margin of changed portions of text, figures, tables, examples, and so on. Change bars highlight new or revised information. For example:

The message types specified in the REPORT clause are different in the COBOL85 environment and the Common Run-Time Environment (CRE).

The CRE has many new message types and some new message type codes for old message types. In the CRE, the message type SYSTEM includes all messages except LOGICAL-CLOSE and LOGICAL-OPEN.

1 About the GSDE for Windows

TBD

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Installing and Starting the GSDE for Windows

This section gives instructions for installing, uninstalling, and starting the GSDE for Windows application on your computer.

Minimum Hardware and Software Requirements

To install the GSDE, you need the GSDE CD-ROM and the following minimum equipment and software:

- 133 Mhz or higher Pentium-compatible processor

- 256 MB of RAM (recommended)

- 2GB hard disk with at least 650 MB free space

- CD-ROM drive

- Windows 2000 (SP2 recommended, but not required)

Note. The GSDE cannot be installed on Windows NT, Windows 98, Windows 95, or any earlier operating system.

Install GSDE for Windows

The following procedure installs the GSDE application and associated files on your hard disk. You must use the installation program to install the GSDE—don't try to install it by dragging files from the CD-ROM to your hard disk.

If you want to cancel the installation at any time during the following procedure, click Cancel.

➤ **To install the GSDE for Windows on your computer**

Assumptions

- ❑ Your PC meets the minimum software and hardware requirements described above.
- ❑ You have exited all other applications running on your computer.

Start the installation program.

1. Insert the GSDE CD-ROM into your CD-ROM drive. Installation begins automatically.

2. Installation should begin automatically. If it does not, select Start > Run > *CDdrive*:\setup.exe.

3. When the GSDE set-up program has prepared the InstallShield Wizard, click Next to continue the installation.

Review the License Agreement and README file.

4. Review the License Agreement, and then click Yes to accept its terms.

5. Review the README file for the release, and then click Next to continue.

Personalize your copy of the GSDE.

6. Enter your Windows user name and your company name to personalize your copy of the GSDE.

7. Click one of the following radio buttons to determine who has access to the GSDE application on your computer:

   - Anyone who uses this computer (all users)
   - Only for me (*user name*)

Choose a location on your hard drive for the GSDE files.

8. Click Next to install the GSDE application and associated files in C:\Program Files\Compaq\GSDE\, or click Browse to select another folder on your computer.

9. You create GSDE service graphs and tables in a working folder that also contains the installed SIB template definitions and message sets. The GSDE installation procedure creates the initial working folder for you. Additional working folders can be created after installation (see Create a New Working Folder on page 3-2).

   Click Next to create the initial working folder under C:\Program Files\Compaq\GSDE\, or click Browse to select another folder on your computer.

   If you want the working folder to be shared among multiple users, select a shared directory; otherwise, select a private directory.

Complete the installation.

10. Choose the Program Folder where you want the GSDE program icon to appear. By default, the icon is added to a new folder named GSDE Programs. You can type a different folder name or select an existing folder from the list.

11. Click Next to continue.

12. Review the settings you have chosen for the installation, then click Next to continue or Back to to make changes.

13. After the GSDE files have been copied to your hard drive, click Finish to exit the installation program.

Restart, if necessary.

14. If you did not exit all open applications before starting the installation, you may be prompted to restart your computer. Select Yes and click Finish to restart now, or select No and click Finish to restart at another time.

Start GSDE for Windows

1. Start the GSDE from the Start > Programs menu.

   If this is the first time you have started the GSDE, the Create New dialog box appears.

2. Do one of the following:

Click	To
New Graph	Start the GSDE and open a new service-graph canvas
New Table	Start the GSDE and open the New Table dialog box
Cancel	Start the GSDE

3. If you want to open a new canvas or a New Table dialog every time you start the GSDE, click the check box to make the selected option the start-up default.

   You can also change the start-up default by selecting Tools > Options from within the GSDE.

Uninstall GSDE for Windows

The uninstall program removes all GSDE files from your hard disk *except* the Services folder containing service graphs you have created.

➤ **To uninstall the GSDE for Windows**

Assumptions

❑ You have exited the GSDE application, and no other users are accessing it from a shared folder on your computer.

1. Open the Windows Add/Remove Programs control panel.

2. Select Compaq Graphical Service Design Environment (GSDE) for Windows from the list of currently installed programs.

3. Click Change/Remove.

4. The InstallShield Wizard starts the GSDE Setup Maintenance program.

5. Select Remove, and click Next.

6. Click OK to confirm the uninstall procedure.

7. When the GSDE application and associated files have been removed, click Finish to complete the uninstall procedure.

3 The GSDE Working Folder

During installation, you were prompted to specify the location of the initial GSDE *working folder.* A working folder contains the service graphs and tables you create using the GSDE, as well as supporting files that define message sets and SIB templates. If you accepted the default location during installation, the folder C:\Program Files\Compaq\GSDE is your initial working folder.

Working Folder Contents

The working folder contains the four subfolders described in Table 3-1 below.

Table 3-1. GSDE Working Folder Contents (page 1 of 2)

Folder Name	Contents after installation
MsgSets	Message-set definition files (file names ending with the .msgset extension). The following files are installed in this folder:

File name	Message Set
CAP1m	Customized Applications for Mobile Enhanced Logic (CAMEL) Application Part (CAP) version 1
CAP21m CAP22m CAP23m	CAP version 2
etsim	European Telecommunication Standards Institute (ETSI) Intelligent Network Application Protocol (INAP)
GPRS1m GPRS2m	General Packet Radio Service (GPRS) (subset of CAP messages)
MAP31m MAP32m MAP33m MAP34m MAP35m MAP36m MAP37m MAP38m	Mobile Application Part (MAP) version 3

Folder Name	Contents after installation
Services	None. The service graphs you create in the GSDE will be saved to this folder.
SibDefs	SIB template definition files (file names ending with the .sibdef extension). The following files are installed in this folder:

File name	SIBs
ANSISIBS	American National Standards Institute (ANSI) SIBs
CS1TEMVI	Capability Set 1 (CS1) SIBs
CS1TMPL	CAMEL-2 SIBs
DBSIBSSB	Compaq Telecom debug SIBs

Table 3-1. GSDE Working Folder Contents (page 2 of 2)

Folder Name	Contents after installation	
SibDefs	<u>File name</u>	<u>SIBs</u>
	ETSITMPL	ETSI INAP SIBs
	FSLSIBSB	Compaq Telecom SIBs
Tables	None. The tables you define in the GSDE will be saved to this folder.	

Message Sets

A message set is a set of TCAP messages that an FSLEE application receives or sends, plus the rules for the exchange of those messages. The FSLEE application receives and sends messages through the signalling network on behalf of a service. It builds or breaks down the messages using a simple set of tokens. The service must provide the logic to validate the content of the tokens, store the proper values in the tokens, and determine the appropriate messages to exchange with other network elements.

The service you create must use the same message set that the underlying FSLEE application is configured to use. For information on configuring message sets for the FSLEE application, see *TSCE Installation, Configuration, and Administration*.

During GSDE installation, the message sets listed in <u>Table 3-1</u> on page 3-1 are installed in the MsgSets subfolder of the initial working folder. You can add new message sets by copying their definition files to this folder.

SIB Templates

SIB template files contain information about each SIB in a SIB library, including its name, inputs, outputs, the number of events it generates, and (if applicable), associated table definitions.

The SIB libraries used in a service created in the GSDE must be linked to the Application Framework when the underlying FSLEE service application is created. This must occur before the service can be cut over (deployed) to the INS host system.

During GSDE installation, the SIB libraries listed in <u>Table 3-1</u> on page 3-1 are installed in the SibDefs subfolder of the initial working folder. You can add new SIB libraries by copying their template files to this folder.

Create a New Working Folder

You can create a new working folder just by copying the four subfolders listed in <u>Working Folder Contents</u> on page 3-1 to a new folder, or you can create a new working folder from within the GSDE. Creating multiple working folders can help you keep different working environments separate from one another. For example, you could have one working folder for building ANSI services and another for building ETSI services.

➤ **To create a new working folder in the GSDE**

Assumptions

❏ You have saved and closed any open graphs or table definitions.

Create the new working folder.

1. Select File > Change Working Folder.

2. Browse to the location where you want to create the new working folder and click New Folder.

3. Enter a name for the new folder and click OK.

   The following message box is displayed: "The directory (*pathname*) does not contain the files needed for use with the GSDE. Would you like to copy the files to this directory?"

4. Click OK to create the new folder, or click Cancel to cancel the operation.

Select the files to be copied to the new working folder.

5. In the Select Message Sets dialog box, select the message definition files to be copied from the current working folder to the new working folder.

To	Do this
Select a range of consecutive file names	Click the first item in the range, and then shift click the last item
Select multiple file names that are not consecutive	Ctrl click each item
Select all file names	Press Ctrl A

6. Click one of the following:

Click	To
Copy	Copy the selected files to the new working folder
Cancel	Cancel the operation
Skip	Skip over the message definition files without copying any of them

7. In the Select SIB Templates dialog box, select the SIB template definition files to be copied from the current working folder to the new working folder.

8. Click Copy, Cancel, or Skip.

9. In the Table Definitions dialog box, select the table definition files to be copied from the current working folder to the new working folder.

10. Click Copy, Cancel, or Skip.

    The new working folder is now the current working folder.

Change Working Folders

While you're working in the GSDE, your tables and/or graphs are saved to the current working folder. You can have only one working folder open at one time, but you can change to a different working folder from within the GSDE.

➤ **To change the current working folder**

Assumptions

❑   You have saved and closed any open graphs or table definitions.

1.   Select File > Change Working Folder.

2.   Browse to and select a working folder, and click OK.

Back up and Restore a Working Folder

You can use any Windows back-up/restoration procedure to back up and restore working folders.

4 Service Graphs

In the GSDE, you create or modify a visual description of a service in an edit window called the canvas. The visual description is called a service graph. It consists of SIBs (represented by icons) that you connect to represent the logic flow of the service.

This section describes the canvas and explains how to place and connect SIBs on the canvas to create a service graph.

The Canvas

When you create a new service graph, the GSDE opens an empty canvas and the SIB palette pane listing the SIB palettes available for creating a graph. Figure 4-1 shows the GSDE with an empty canvas; the text following the illustration explains the labelled window elements.

Figure 4-1. GSDE Canvas
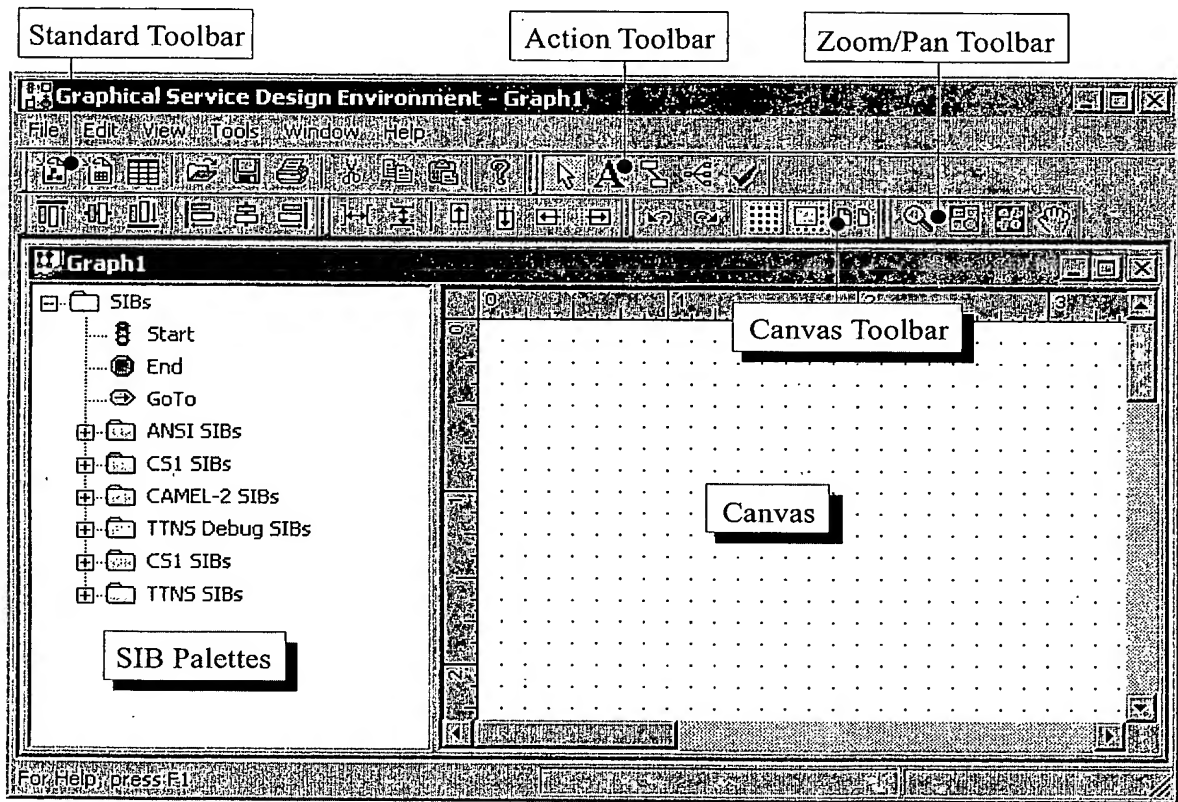
Canvas   The canvas is the drawing window where you place SIBs. A ruler runs along the top and left edges of the window, and the canvas is marked by grid lines that help you line up SIBs as you work. You can display or hide the grid.

SIB palettes   The SIB palettes available in your current working folder are listed in the SIB palette pane.

Standard toolbar   Use the Standard toolbar to perform basic operations such as opening and saving a file or cutting and pasting objects on the canvas.
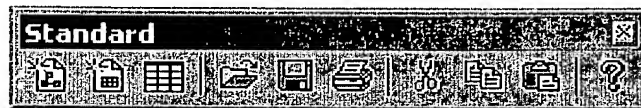
New   New   Edit/ Open Save Print Cut Copy Paste Help
Graph Table View
            Tables

Action toolbar   Use the Action toolbar to select objects on the canvas, enter text labels, link SIBs, or apply auto-layout (see Auto-Layout on page 4-3).

Select Text Link Auto   Validate
              Layout Graph

Zoom/Pan toolbar   Use the Zoom/Pan toolbar to change your view of the canvas.

Zoom Zoom Zoom Pan
     to Fit Select

Canvas toolbar   Use the canvas toolbar to change canvas attributes or to repeat or undo actions on the canvas.
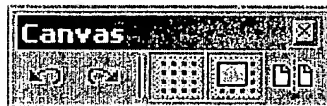
Redo Undo Grid Snap Page
                        Bounds

Canvas Attributes

You can customize your canvas by changing the attributes listed in Table 4-1. These attributes are accessible from the View menu or from the Canvas toolbar.

Table 4-1. Changing Canvas Attributes

Option	Description	Keyboard Shortcut
Page Bounds	Show or hide page boundaries on the canvas.	Alt+V, B
Grid	Show or hide the canvas grid.	Alt+V, G
Snap to Grid	Turn snap-to-grid feature on or off. When snap-to-grid is on, the top left corner of an item placed on the canvas is moved to the nearest grid point.	Alt+V, S

Auto-Layout

When you place items on the canvas, you can either arrange the items yourself or let the GSDE arrange them automatically. The auto-layout feature can be enabled or disabled from the Tools menu. When you create a new graph, the current auto-layout setting becomes one of the graph properties.

➤ **To set the default auto-layout option for a new graph**

1. Select Tools > Options and then click the Auto-Layout tab.

2. Select one of the following auto-layout options:

Option Name	Description
None	Auto-layout is disabled. You must arrange graph items manually.
Left-to-Right, no GoTo's	SIBs are spaced evenly from left to right, beginning with the Start SIB. If a SIB connects to another SIB from right to left, event connections and labels may overlap. You must manually add a GoTo SIB if you want to separate the overlapping connections.
Left-to-Right, add GoTo's if necessary	SIBs are spaced evenly from left to right, beginning with the Start SIB. GoTo SIBs are added automatically to keep all event connections moving from left to right.
Top-to-Bottom, no GoTo's	Same as the Left-to-Right, no GoTos option. SIBs are laid out vertically (top to bottom) instead of horizontally (left to right).
Top-to-Bottom, add GoTo's if necessary	Same as the Left-to-Right, add GoTo's option. SIBs are laid out vertically (top to bottom) instead of horizontally (left to right).

3. Click the check box if you want the GSDE arrange the graph automatically after each new connection or after you have moved a SIB.

   If you do not choose this option, you must click the Auto-Layout button on the Action toolbar to use the auto-layout feature.

4. Click OK or Cancel.

➤ **To change the auto-layout setting for an existing graph**

1. Select Edit > Graph Properties and then click the Auto-Layout tab.

2. Select one of the auto-layout options described in Step 2 on page .

3. Click OK, Apply, or Cancel.

Zooming and Panning

You can "zoom" in on a graph from the View menu or from the Zoom/Pan toolbar. Four zoom options are available from the View menu:

Option	Description
Zoom Normal	Returns view to original setting. Enabled only if the current view is something other than 100%.
Zoom Percent	Scales view to one of: 50% 75% 100% 200%
Zoom Custom	Scales view to a percentage of original view. Enter a value between 5 and 1500%.
Zoom to Fit	Scales view such that every item on the graph is visible.

The zoom/pan toolbar offers slightly different zoom functions, plus a panning option:

Button	Description
Zoom	The pointer changes to a magnifying glass. Click and drag the magnifying glass to select an area of the canvas. When you release the mouse button, the selected area is scaled to fill the entire view. To cancel the zoom function, click the Select button in the action toolbar.
Zoom to Fit	Scales view such that every item on the graph is visible.
Zoom Selection	Scales view such that every selected item on the graph is visible.
Pan	The pointer changes to a hand. Click and drag the hand to "grab" and move the canvas. To cancel the panning function, click the Select button in the action toolbar.

Selecting All Objects on the Canvas

You can select all objects on the canvas from the Edit menu or by using a keyboard shortcut:

- Edit > Select All
- CTRL+A
- ALT+E, L

Graph Operations

Opening, Closing, Saving, or Printing a Graph

All graphs you create in the GSDE are saved in the Services subfolder of your current working folder. <u>Table 4-2</u> on page 4-5 describes the basic graph operations available from the File menu:

Table 4-2. Basic Graph Operations

File Menu Option	Keyboard Shortcuts	Description	Notes
New Graph	CTRL+N ALT+F, N	Creates a new graph in the Services subfolder of the current working folder.	Service graph file names end with the .graph extension.
Open	CTRL+O ALT+F, O	Opens an existing graph.	The Open dialog box displays graphs in the Services subfolder of the current working folder. If you browse and select a graph in another working folder, you will be prompted to change your working folder before the graph is opened. Several users can edit copies of the same graph in a shared working folder. The last version of the graph to be saved will overwrite any earlier versions.
Close	ALT+F, C	Closes a graph.	If you have made changes to the graph since saving it last, you will be asked whether you want to save changes before closing.
Save	CTRL+S ALT+F, S	Saves the graph.	The first time you save the graph, you must enter a name for it. If you do not enter a name, the name defaults to Graphn.
Save As	ALT+F, A	Saves the graph under a new name.	If you enter a name that already exists, you are asked if you want to overwrite the existing file.
Print	CTRL+P ALT+F, P	Prints a graph.	You can print one or more copies of a graph or selected pages. To see where page breaks will occur, click the Page Boundaries button on the Canvas toolbar.
Print Preview	ALT+F, V	Displays a graph as it will appear when printed.	
Print Setup	ALT+F, R	Lets you change printer and paper settings.	

Deleting a Graph

Service graph files (file names ending with the .graph extension) can be deleted through Windows Explorer or any other Windows file-deletion method. You cannot delete a graph from within the GSDE.

Graph Properties and Options

When you create a new service graph, the GSDE assigns it certain characteristics, such as whether auto-layout is enabled and what sort of lines will be used to connect SIBs. From the Edit menu, you can change the properties of an existing graph, and from the Tools menu, you can change the options that define properties to be assigned to new graphs.

➤ **To change the properties of an existing graph**

1. Select Edit > Graph Properties.

2. To change the auto-layout option used to arrange the graph, click the Auto-Layout tab.

   Auto-layout options are described in Step 2 on page 4-3.

3. To change the connection line style or the canvas size, click the Graph tab.

4. Click one of the following to define what kind of lines are used to connect SIBs in the graph:

Option Name	Description
Direct Lines	Straight lines are drawn directly from the start point to the end point.
Orthogonal Lines	Only vertical and horizontal lines are drawn between the start and end points. If necessary, the GSDE will insert 90-degree angles in the lines.

5. Enter the height and width of the canvas.

6. To add a description of the graph or version information, click the Information tab.

7. You can enter the following information about the graph in the text fields:
   - Version
   - Author
   - Description

8. Click OK, Cancel, or Apply.

➤ **To change the options to be applied to new graphs**

1. Select Tools > Options.

2. To change the auto-layout option for new graphs, click the Auto-Layout tab.

   Auto-layout options are described in Step 2 on page 4-3.

3. Select one of the auto-layout options described in Step 2 on page 4-3.

4. To change the connection line style for new graphs, click the Graph tab.

   Auto-layout options are described in Step 4 on page 4-6.

5. Click OK or Cancel.

Working with Multiple Graphs

Within the GSDE, you can have several graphs open for editing at the same time. Table Table 4-3 describes the window management options available from the Window menu.

Table 4-3. Working with Multiple Graph Windows

Window Menu Option	Keyboard Shortcuts	Description
Close	ALT+W, O	Closes the active window.
Close All	ALT+W, L	Closes all open windows.
Next	ALT+W, X	Activates the next window.
Previous	ALT+W, V	Activates the previous windows.
Cascade	ALT+W, C	Arranges the open windows as overlapping tiles.
Tile Horizontally	ALT+W, H	Tiles the open windows horizontally.
Tile Vertically	ALT+W, V	Tiles the open windows vertically.
Window List	ALT+W, n	Lists all open windows by name and number. The active window is identified with a checkmark. You can activate a different window by clicking on the window name, or you can open the Window menu and type the number of the window you want to activate.

SIBs

The SIBs available for creating a service graph reside in the SibDefs subfolder of the current working folder. Table 3-1, GSDE Working Folder Contents, on page 3-1, lists the SIB libraries supplied with the GSDE; other SIB libraries may be available from third parties, or a SIB developer can create additional SIBs specifically for a service. (SIB creation is described in the *FSLEE Development Guide*.)

Placing a SIB on the Canvas

SIBs are displayed in the SIB palette pane to the left of the canvas. The pane displays a list of folders; each folder represents a SIB library. To display the SIBs in a particular SIB library, click the + sign next to the folder name or double-click the folder icon.

You can place a SIB on the canvas in either of two ways:

- Press and hold the mouse button to drag the SIB from the SIB palette pane, then release the button to drop the SIB on the canvas.

- Click on a SIB in the SIB palette pane. When you move the pointer to the canvas, it changes shape. Click again to drop the SIB on the canvas.

You can place several instances of the same SIB on the canvas. The GSDE appends a number to each subsequent SIB instance label so that all labels will be unique.

Linking SIBs

For each SIB in a graph (with the exception of the Start SIB), you should specify the event that passes control to the SIB. The logic flow from SIB to SIB is represented on the canvas by a link.

➤ **To link two SIBs in a graph**

1. Click the Link button on the Action toolbar.

2. Move the pointer over the first SIB. If this SIB generates events, the pointer changes shape.

   The GoTo SIB (page 4-11) and End SIB (page 4-11) generate no events and cannot be used as the starting point of a link.

3. Click the first SIB.

4. Move the pointer to the destination SIB and click it.

   If the first SIB generates more than one event, and if more than one of these events is not yet linked to a destination SIB, a pop-up list of events appears.

5. If multiple events are available, do one of the following:

   - Select All to link all events to the destination SIB.

   - Select the event you want to link to the destination SIB. Events that have already been linked to another SIB are grayed out.

   - Select Cancel to cancel the link.

   A link is drawn from the first SIB to the destination SIB. The link is labeled with the first 12 characters of the event name(s).

➤ **To delete a link between two SIBs**

1. Click on the link to select it.

2. Select Edit > Delete, or press the Delete key.

   If more than one event is mapped in this link, the Delete Events dialog box is displayed.

3. Select the events to be deleted from the link, and click OK.

➤ **To move a link to a different destination SIB**

1. Click on the link to select it.

2. Move the pointer to the arrowhead at the end of the link. The pointer changes shape.

3. Drag the arrowhead to the new destination SIB.

   If this is the first link between the originating and destination SIBs, a new link is drawn between the two SIBs. If the two SIBs are already linked, the new event label(s) are added to the existing link.

SIB Instances

Each time you place a SIB on the canvas, you are creating a SIB *instance* from the template file that defines the SIBs in a library. For each SIB instance, you must supply values for the SIB's inputs and outputs or other data that determines how the SIB will function.

You supply data for a SIB instance by opening a SIB instance dialog box. There are several ways to do this:

- Double-click the SIB instance on the canvas
- Click the SIB instance and then select View > Properties
- Click the SIB instance and then press ALT+ENTER

From the SIB instance dialog box, you can:

- Enter a label to identify this SIB instance

- Define SIB inputs and outputs (if any)

- Associate service data table columns (if any) with call variables, or supply literal values

- Display a list of the events generated by the SIB, showing how each event is mapped (linked to a destination SIB)

The fields displayed in a SIB instance dialog box are derived from the SIB template definition file. The following procedure shows how to supply data for a "typical" SIB instance. A few special SIBs supplied by Compaq Telecom have very different instance dialogs and are discussed in the following subsections.

➤ **To supply SIB instance data**

1. Double-click GoTo SIB instance on the canvas.

   The SIB instance dialog box opens, displaying the SIB name in the title bar.

2. Modify the SIB label, if desired.

   The label may contain up to 32 characters, in any combination of letters, digits, and underscores.

   The label must start with a letter, and it must be unique within the graph.

3. Click Events to display a list of the events generated by the SIB. If any of the events have been mapped to destination SIBs, the list shows the label of the destination SIB for that event.

4. Click OK to close the event list.

5. The Input Parameters area lists each input required by the SIB, with the following fields:

    Parameter   Displays the parameter name and an icon showing whether the parameter is required (R) or optional (O).

    Value   Displays the value associated with the input (if any), with an icon showing the data type of the input.

    ▣   Action button that displays a pop-up menu allowing you to select a call variable or (if applicable) another type of value to be associated with the input.

    To assign a value to an input, click the action button and select one of the pop-up menu options.

6. The data type of the input determines the content of the dialog box displayed next. After you have selected or entered the input value, click OK to return to the SIB instance dialog box.

7. Repeat Steps 5 and 6 to assign values to additional input parameters.

8. The Output Parameters area lists each output generated by the SIB, with the following fields:

    Parameter   Displays the parameter name and a check box showing whether the parameter has been associated with a call variable.

    Call   Displays the name of the call variable to which the output is
    Variable   mapped.

    ▣   Action button that displays the list of call variables that can be associated with the output.

    To assign a value to an output, click the action button and select a call variable from the list.

9. Click OK to return to the SIB instance dialog box.

10. Repeat Steps 8 and 9 to assign values to additional output parameters.

11. Click OK to close the SIB instance dialog box.

The Start SIB

The Start SIB indicates the beginning of the logic flow within a graph; it has no inputs and only one output event (AF_start). The Start SIB is not associated with a preceding event because it receives control directly from the FSLEE application. You can place only one Start SIB instance on the canvas.

Opening the Start SIB instance on the canvas will not open a SIB instance dialog box—instead, the list of call variable is displayed.

The GoTo SIB

A GoTo SIB provides a means of mapping multiple events to a single node in a graph, or it can be used simply to improve graph legibility. A GoTo SIB produces no events. It ends one branch of the graph and redirects the processing flow elsewhere.

➤ **To use a GoTo SIB**

1. Open a GoTo SIB instance on the canvas.

   The SIB instance dialog box displays the labels and types of the SIBs you can select as the destination of the GoTo.

2. Modify the GoTo SIB label, if desired.

3. Click on a destination SIB name to select it.

4. Click OK or Cancel.

The End SIB

The End SIB marks the end of a logic flow within a graph. It has no output events or instance data. You can use multiple End SIBs within a single graph. All logic flows must ultimately terminate to an End SIB.

Opening an End SIB instance on the canvas allows you to change only the SIB label.

The Switch SIB (TTNS_switch)

The Switch SIB (TTNS_switch) tests the value of a token to determine which branch of the logic flow should be executed next. The test value is the input to the SIB. The outputs include up to 10 events that you define, plus failure and default events. The default event is output if the test value token matches none of the match value tokens. If an error occurs, the failure event is output, and the error code is written to an error value token.

After you provide SIB instance data for the Switch SIB as described in the procedure below, the events you have defined will be available to link to destination SIBs.

You must define at least one match value and corresponding event for this SIB. For more information on the Switch SIB, see the *FSLEE Reference Manual*.

➤ **To supply Switch SIB instance data**

1. Open the SIB instance on the graph.

   The SIB instance dialog box is displayed.

2. Modify the SIB label, if desired.

3. Click the Test Value button to define the token that will be compared with candidate tokens.

4. Browse the call variable list and select the call variable to be used as the test value, then click OK.

5. In the Event Name column, enter the name of the event to be output if the test value is equal to the value of corresponding match-value token.

6. Click anywhere in the Match Value row, then choose Select Call Variable or Enter Literal Value from the pop-up menu.

7. Do one of the following:

   ● Browse the call variable list and select the call variable to be used as the match value, then click OK.

   ● Enter a literal value and select its data type, then click OK.

8. Repeat Steps 5 through 7 to define up to 9 additional events.

9. Click the Error Value button.

10. Browse the call variable list and select the call variable to which an error code will be written if a failure occurs in the interface to this SIB.

11. Click OK.

12. Click OK again to close the SIB instance dialog box.

Generic Read/Write Data Table SIBs (TTNS_fslReadSP and TTNS_fslWriteSP)

The TTNS_fslReadSP and TTNS_fslWriteSP SIBs can be used to read data from or write data to a service data table. You must have already created the table to be read/written—that is, the table must exist in the Tables subfolder of the current working folder. (For more information on service data tables, see Section 5.)

A SIB that reads or writes to a service data table can access only one table at a time. If your service makes use of more than one table, you must use one SIB to access each table.

➤ **To supply TTNS_fslReadSP or TTNS fslWriteSP SIB instance data**

1. Open the SIB instance on the graph.

   The SIB instance dialog box is displayed.

2. Modify the SIB label, if desired.

3. Select the table to be read/written from the pull-down list.

   The Table Key Fields area displays the key fields in the table and the values associated with those fields (if any have been assigned). The key fields are those that are used to look up records in the table.

   The Table Field Parameters area displays the fields that can be copied from the table to call variables (TTNS_fslReadSP) or copied from call variables to the table

(TTNS_fslWriteSP). The field parameters act as the outputs for the TTNS_fslReadSP SIB and as the inputs for the TTNS_fslWriteSP SIB.

4. In the Table Key Fields area, click the action button in a key field row

5. Choose Select Call Variable or Enter Literal Value from the pop-up menu.

6. Do one of the following:

    ● Browse the call variable list and select the call variable to be associated with the field, then click OK.

    ● Enter a literal value and select its data type, then click OK.

7. Repeat Steps 4 through 6 to associate values with additional key fields.

8. In the Table Field Parameters area, click the action button in a field parameter row.

9. Select the call variable that the field will be copied to or from, and click OK.

10. Repeat Steps 8 through 9 to assign call variables to additional table fields.

11. Click the Error Value button.

12. Browse the call variable list and select the call variable to which an error code will be written if a failure occurs in the interface to this SIB.

13. Click OK.

14. Click OK again to close the SIB instance dialog box.

SIB Online Help

Online help is available for the Compaq Telecom (TTNS), ETSI, CAMEL-2, and CS-1 SIBs. Click the Help button in the SIB instance dialog box to display online help for that SIB.

You can also get a list of the inputs, outputs, and events for each SIB in the SIB palette pane. Right-click the SIB icon in the palette pane and select Properties.

5 Service Data Tables

During the execution of a service, a SIB may need to read data from or write data to a service data table. You can use the GSDE to create a table definition for a service data table and to create a table from the schema. The table definition describes the logical structure and content of the table. You can use the same definition to create multiple service data tables. Tables created in the GSDE reside in the Tables subfolder of the current working folder. The service data table that will be read or written by a particular service must be created before the service graph is created.

The Tables Window

Table definitions are created and modified in the GSDE Tables window. Figure 5-1 shows the GSDE with the Tables window open; the text following the illustration explains the labeled window elements.

Figure 5-1. GSDE Tables Window
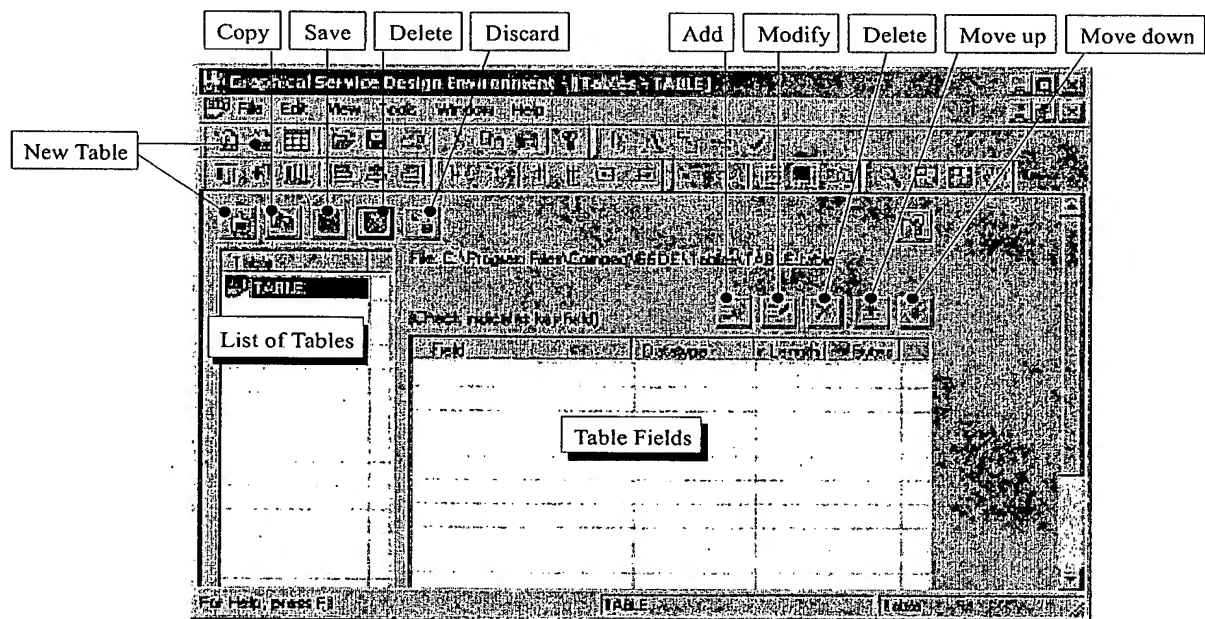
New Table	Use the New Table button on the Standard toolbar or in the Tables window to create a new table definition.
List of Tables	The tables available in your current working folder are listed in the Tables pane.
Copy	The Copy button creates a new copy of the table.

Save	The Save button saves the table to the Tables subfolder of the current working folder.
Delete	The Delete button changes the table file name extension to .deleted. The table remains in the Tables subfolder until you remove it using any Windows delete utility.
Discard changes	The Discard Changes button discards any changes made to the selected table.
Table Fields	The Table Fields pane displays the fields in the selected table.
Add	The Add button adds a new field to the table.
Modify	The Modify button lets you change a field in the table.
Delete	The Delete button deletes a field from the table.
Move up	The Move Up button moves the selected field up one row.
Move down	The Move Down button moves the selected field down one row.

Creating a New Table

➤ **To create a new table**

1. Do one of the following:

   - When starting the GSDE, click New Table in the Create New dialog box
   - In the GSDE, Click the New Table icon on the Standard toolbar
   - In the GSDE, select File > New Table
   - In the GSDE, press ALT+F, then T
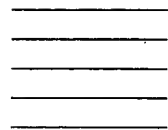
   The New Table dialog box opens.

2. TBD

Table Operations

TBD

6 Call Variables

TBD

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